Applicants: Lee, et al.

Serial No.: Unassigned

Filing Date: Herewith

Docket No.: 1508-11 PCT/US

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IN THE SPECIFICATION:

Amendments to the Specification:

Please replace the paragraph beginning at page 6, line 3 with the following rewritten paragraph:

-- Especially, the neutral particle processing apparatus according to the present invention could perform lithography by choosing a proper collimator and using a mask such as a stencil mask. Two major advantages can be obtained by the neutral particle lithography instead of photo lithography. Photo lithography is performed by consecutive processes comprising exposing a photoresist to light through a patterned mask followed by developing. Furthermore, in order to obtain tens of nanometer-scaled line width, new photo lithography should be developed because of the comparatively long wave length of light compared to the line widths required. However, the neutral particle lithography can simultaneously perform pattern formation and removal of the photoresist, by exposing radical neutral particle beams such as oxygen, which was generated from the neutral particle processing apparatus according to the present invention, onto the photoresist through a patterned mask, and, as a consequence, the processing efficiency could be enhanced. In addition, since the de Broglie wavelength of the neutral particle beam is very short (for instance, it is about 0.002nm for oxygen atomic beam with 10 eV) and, as a result, there is no limit on focusing range rather than photo lithography, and the neutral particle beam could be applied to tens of nanometer lighography. According to actual experiments performed to remove photoresist using the neutral particle beam processing apparatus, about 30 nm/minute removal speed as obtained, which is approximately 4 fold improvement compared to that of PCT/KR03/02146.--

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Please replace the paragraph beginning at page 6, line 23 with the following rewritten paragraph:

-- Fig. 1a Fig. 1 is a cross-sectional view showing a preferred embodiment of the neutral particle beam processing apparatus in accordance with the present invention. --

Please replace the paragraph beginning at page 9, line 7 with the following rewritten paragraph:

-- Fig. 1 is a cross sectional view showing a preferred embodiment of the neutral particle beam processing in accordance with the present invention. The apparatus illustrated in Fig. 1 is comprised of a reaction chamber 100 with an opened lower part, a plasma limiter 200 located at the opened lower part of the reaction chamber 100 and a treating housing 300. The inner space of the reaction chamber is a plasma discharging space 101. An antenna 102 to supply high frequency energy is installed in the discharging space 101 and a gas inlet port 104 and a gas outlet port 105 are installed at a side of the reaction chamber 100. The reaction chamber 100 is operated as follows. First, processing gases are introduced injected into the plasma discharging space 101 through the gas inlet port 104 and the processing gases undergo a plasma discharge by the high frequency power supply supplied through the antenna 102 and is converted into plasma 103. The plus ions (plasma ions) of the generated plasma are directed to the heavy metal plate 106 located above the plasma discharging space 101, and there, the plasma ions collide with the heavy metal plate 106 and converts to neutral particles. Herein, the plasma ions could be easily directed to the heavy metal plate 106 by applying a minus bias voltage to the heavy metal plate 106. --